

**METHOD FOR COMMISSIONING A TELECOMMUNICATION
TERMINAL DEVICE AND A CORRESPONDING TELECOMMUNICATION
TERMINAL DEVICE**

The present invention is directed to a method for commissioning a
5 telecommunication terminal device such as, for example, a traditional telephone, a
mobile telephone or a cordless telephone, as well as to a telecommunication terminal
device that, in particular, can be utilized in telephone private branch exchanges as
well.

As known, a user can set certain operating parameters at his telephone set
10 that subsequently define the operation of the telephone set. the setting of the
operating parameters thereby ensues by inputting corresponding codes that are to be
input via the keyboard of the telephone set. The setting of the codes, further, is
displayed on the display of the telephone set insofar as a corresponding display is
present. For example, the ringing frequency, the ringing volume or the exchange code
15 (AKZ) to be pre-selected for external calls given operation at a telephone private
branch exchange, etc., can thus be set or programmed as operating parameters. Such a
programming of the telephone sets, however, is relatively complicated since a
corresponding code must be input for each setting of an operating parameter, but the
user must usually look this up in the handbook of the telephone set since he cannot
20 remember the multitude of different setting codes.

In order to facilitate the commissioning of the telephone set for the final
consumer, the most important operating parameters are normally pre-programmed by
the manufacturer with the assistance of pre-set standard values (default values),
whereby these pre-settings cover a majority of the employment areas. Nonetheless,
25 applications often occur that are not covered by these pre-settings, so that the user
must again carry out the aforementioned, complicated reprogramming of the
telephone set.

The present invention is therefore based on the object of proposing a
method for the commissioning of a telecommunication terminal device as well as a
30 corresponding telecommunication terminal device with which the commissioning of

the telecommunication terminal device can be made easier for the final consumer or, respectively, user.

This object is achieved by the present invention with a method having the features of claim 1 or, respectively, a telecommunication terminal device having the features of claim 6. The subclaims respectively describe preferred and advantageous embodiments of the present invention that in turn contribute to an optimally simple commissioning of the telecommunication terminal device by the final consumer in that the setting of the various operating parameters is facilitated in a user-friendly way.

According to the present invention, an automatic input prompting is provided that guides the user or final consumer through the most important operating parameter settings and thus supports the programming of the operating parameters by the user. This automatic input prompting can, in particular, be realized in the form of a software assistant in the telecommunication terminal device that is automatically activated as soon as the telecommunication terminal device is connected to the power supply. It can also be provided that this software assistant is automatically re-activated after a power outage in order to thus enable a resetting of the operating parameters by a user.

The automatic input prompting proposed according to the present invention or, respectively, the aforementioned software assistant is particularly realized such that various input or selection masks are automatically displayed on the display of the telecommunication terminal device according to a predetermined hierarchic system, these prompting the user to set corresponding operating parameters. The setting of the respective operating parameters can occur by selecting a predetermined option or by inputting a corresponding value. After an input or selection by the user, the automatic input prompting automatically changes according to the aforementioned hierarchic system to a new input or selection mask in order to enable the setting of a new operating parameter. An input of the operator thereby advantageously ensues via the keyboard of the telecommunication terminal device. When earlier settings of the corresponding operating parameters are already present when the automatic prompting or, respectively, the software assistant is called, these

are displayed in the corresponding input or selection masks or, respectively, display screens as predetermined, standard or default values, so that the operator can simply accept these values, as warranted.

When a call arrives at the corresponding telecommunication terminal device during the aforementioned, automatic setting procedure, i.e. after activation of the automatic input prompting, the operator is given an opportunity with a corresponding display screen at the respective telecommunication terminal device to accept the call or, on the other hand, continue the setting procedure. On the basis of a corresponding input, usually by actuating a corresponding key (soft key), the operator can accept the call, whereby the setting procedure is aborted in this case and the software assistant or, respectively, the automatic input prompting is placed into a quiescent condition. Alternatively, it can be provided to always given incoming calls priority, so that the setting procedure is automatically aborted upon arrival of a call in order to be able to accept the incoming call. Advantageously, the settings that have already been made remain stored in this case.

The present invention can be applied to various types of telecommunication terminal device. In particular, the invention can be applied both to terminal devices directly connected to a main telephone terminal as well as to terminal devices connected to a telephone private branch exchange. Further, use of the present invention comes into consideration both in analog or digital, stationary telephone sets as well as in mobile telephones such as, for example, cordless telephones.

The present invention is explained in greater detail below on the basis of preferred exemplary embodiments with reference to the attached drawing.

By way of example, Figures 1a and 1b show the execution of the setting of operating parameters according to the present invention for an analog telephone terminal device on the basis of various display screens.

By way of example, Figures 2a-2c show the execution of the setting of operating parameters according to the present invention for an digital telephone terminal device on the basis of various display screens.

Figure 3 shows a simplified block circuit diagram of an inventive telecommunication terminal device.

First, the structure of an inventive telecommunication terminal device shall be explained on the basis of Figure 3 with reference to the example of a stationary terminal device. The central component part is a central control unit 10 that controls the function of the telecommunication terminal device such as, for example, the reception or, respectively, the transmission of communication information via a telephone network (not shown) connected thereto and, for this purpose, is also coupled to the loudspeaker 11 and the microphone 12 of the telephone. In particular, however, the central control unit 10 also serves for the control of the input or, respectively, setting of operating parameters by an operator. This ensues with the assistance of an input assistant whose functional scope such as, for example, the nature of the operating parameters to be set or the sequence of the setting of the individual operating parameters is defined by the software 15 of the central control unit 10. After activation of this input assistant, various input or selection masks, with whose assistance the operator can, in particular, actuate corresponding inputs or settings via the keyboard 13 of the terminal device, are displayed on the display 1 of the terminal device dependent on the control software 15. Instead of the keyboard 15, and as shall be explained later, the actuation of what are referred to as soft keys is also possible, for example, as input medium for the setting/input of operating parameters. Values that have been input or set for the individual operating parameters are deposited in a corresponding memory 14, for example in an EEPROM, in order, on the one hand, to access these later during operation of the telecommunication terminal device or, on the other hand, to be able to store new values for the operating parameters.

Figure 1a shows the content 100 of a display screen 1 of the inventive analog telephone terminal device after activation of the software or, respectively, input assistant.

The input assistant is automatically activated when the telephone terminal device is connected to a power supply or is resupplied with power after a power outage. I.e., an activation of the input assistant can only be achieved via a mains outage or by unplugging and replugging the power plug of the telephone terminal device. Advantageously, the user is not allowed to plug in a telephone line during the

commissioning of the telephone terminal device but only the power plug, so that incoming calls can have priority over initial device settings. Only after running through the setting procedure, for example, can it be pointed out to the user in the instruction manual that the telephone line should be plugged in.

5 With the display screen 100 shown in Figure 1a, the telephone terminal device first asks the user or, respectively, the operator whether the input assistant should in fact be started for setting various operating parameters of the telephone terminal device. The input possibilities are presented to the user in display fields 2 or, respectively, 3, so that the setting procedure with support by the input assistant is
10 started by actuating a key ("YES" key) allocated to the field 2, whereas the setting procedure is aborted and switched into a quiescent condition by actuating a key ("NO" key) allocated to the field 3.

 After actuation of the "YES" key, the selection mask or, respectively, selection presentation 200 shown in Figure 1a is displayed on the display of the
15 telephone terminal device. With the assistance of the selection presentation 200, the user can select the language for the following installation or, respectively, setting procedure. With the assistance of a key allocated to the display field 5 shown in Figure 1a, the bar shown black in the display 200 can be displaced up, whereas this bar can be displaced down with the assistance of a key allocated to the display field 6.
20 The language selected at the moment is shown over the background of the black bar. Finally, the user can confirm the selection with the assistance of a key ("OK" key) allocated to the field 4.

 After actuating the "OK" key, the message 300 shown in Figure 1a is output on the display of the telephone terminal device, this prompting the user to set
25 the current date and the current time of day. By actuating the "OK" key, an input mask 301 is displayed on the display wherein the user can input the date and the time of day with the assistance of the number keys of the telephone terminal device. The input thereby ensues with the assistance of a cursor that indicates the momentary input position in the input mask. This cursor can be shifted toward the left with the
30 assistance of a key corresponding to the field 7 shown in Figure 1a and can be shifted toward the right with the assistance of a key corresponding to the field 8. The field 9

likewise shown in the display 301 has a backspace function key allocated to it, the cursor being shifted one field toward the left when this is actuated and the momentary input field being deleted at the same time. The input of the data and the time of day can again be confirmed by the user with the assistance of the "OK" key.

5 Subsequently, the software assistant automatically displays a new message 400 on the display of the telephone terminal device with which the user is informed about the setting of the type of connection of the telephone terminal device that is to be actuated next. By actuating the "OK" key, the selection mask 401 shown in Figure 1a is displayed on the display of the telephone terminal device, whereby a black bar
10 can again be displaced up or down for selecting between the given options. When the user has selected "extension" as connection type and subsequently actuates the "OK" key of the telephone terminal device, the performance feature "automatic attenuation equalization" (ADA) is preferably activated and a change to a new message 402 on the display of the telephone terminal device ensues via which the user is informed of
15 the input of the exchange code to be carried out next, i.e. the number to be dialed for external calls in order to access the exchange line. The user can thereby select whether he wishes to input this exchange code (AKZ) or not. When the user has actuated the key of the telephone terminal device corresponding to the "YES" field, an input mask 403 is displayed on the display of the telephone terminal device into
20 which the user can input a three digit exchange code via the number keys of the telephone terminal device.

 When, given the display of the selection mask 401, the user has selected the option "main line" (in this case, the feature "ADA" is deactivated) or has actuated the "OK" key given display of the input mask 403 or, respectively, has actuated the
25 key corresponding to the option "NO" given display of the selection window 402, then a further selection option 500 is displayed on the display of the telephone terminal device, whereby the question is asked whether the user wishes to input a fee or payment factor that represents the basis for the calculation of charges for the calls conducted proceeding from the corresponding telephone terminal device. After
30 actuation of the key allocated to the option "YES", a message 501 is displayed that informs the user about the input of the display format for the payment factor that is to

be actuated next. After actuation of the "OK" key, a new selection mask 502 is finally displayed, whereby the user can select the display format for the payment factor by moving the black bar shown in the display 502 up or down. The selection can in turn be confirmed by actuating the "OK" key, whereby an input mask 503 is subsequently displayed on the display of the telephone terminal device wherein the user can input the desired payment factor for the charge calculation with the number keys of the telephone terminal device. A currency input does not thereby ensue. When a payment factor was input, the payment display is automatically activated in the telephone terminal device.

The input mask 503 is in turn exited by actuating the "OK" key. It is assumed in the example shown in Figures 1a/1b that the installation, i.e. the setting of the operating parameters of the telephone terminal device, has ended, and a corresponding message 600 is displayed on the display of the telephone terminal device. For confirming the end of the installation event, a specific sound sequence or melody can also be optionally output via the loudspeaker of the telephone terminal device or a specific animation can be presented on the display.

Of course, the present invention is not limited to the setting possibilities shown in Figure 1a and Figure 1b; rather, additional or other operating parameters of the telephone terminal device can also be set, such as, for example, the ringing volume, the ringing sequence, etc., supported by the automatic input or software assistant. This is essentially dependent only on the control of the software of the telephone terminal device.

It can be seen from Figures 1a and 1b that the automatic input control sequences according to a pre-programmed and predetermined hierarchic system. By actuating a corresponding key of the telephone terminal device (soft key actuation), the display screen of the telephone terminal device changes and a new selection or input mask is displayed until the installation is over. These transitions are shown in Figure 1a and Figure 1b with the assistance of solid-line arrows. Additionally, however, there is also the possibility of returning from a display screen to a preceding or, respectively, hierarchically higher-ranking display screen in order, for example, to correct incorrect inputs. These returns are shown with broken-line arrows in Figures

1a and 1b and are produced by actuation of an ESC key (ESC hard key) of the telephone terminal device. For example, a return can be made from the display screen 500 to the display screen 400 in this way.

It has already been explained that the automatic setting procedure, i.e. the automatic software or, respectively, input assistant, is always activated when the telephone terminal device is connected to the power supply or, respectively, is resupplied with power after a power outage. Accordingly, the setting procedure and, thus, the input assistant is automatically exited when no input has been actuated for a longer time, for example 2 minutes. Settings that have already been actuated remain stored and are thus preserved. Over and above this, there is also the possibility of exiting the input procedure by picking up the receiver and in turn hanging up the receiver or, respectively, by correspondingly turning the loudspeaker of the telephone terminal device on and then off, which corresponds to an emergency reset.

As a rule, a telephone terminal device is already delivered with predetermined standard or default settings of the individual operating parameters. These default settings are preferably accepted by the input assistant in the presentation of a corresponding display screen and offered to the user for confirmation, so that no new input by the user may be required when the predetermined default settings are accepted. The same is also true of operating parameters that had already been set by the user earlier. When the user does not agree with these earlier settings of the operating parameters, a resetting or re-selection can be undertaken with a corresponding input via the keyboard of the telephone terminal device, as described above.

During the activation of the input assistant, i.e. during the running of the setting procedure presented in Figures 1a and 1b, it can occur that a call arrives at the corresponding telephone terminal device. In this case, a corresponding display screen is automatically displayed on the display of the telephone terminal device that informs the user that a call is waiting and indicates the possibility of accepting the call or, respectively, continuing with the setting procedure (for example, with soft keys "accept" and "continue"). When the user decides to accept the call, i.e. when the user actuates the corresponding accept key, the setting procedure and the automatic input

assistant is aborted and the user can accept the call. When, in contrast, the user has decided to continue the setting procedure, the display screen that informed the user of the waiting call is erased and a return is made to the preceding display screen.

Alternatively, it can be provided that incoming calls always be given
5 priority, so that the setting procedure is automatically aborted upon arrival of a call in order to be able to accept the incoming call. Advantageously, the settings that have already been actuated remain stored in this case.

Figures 2a-2c show a setting procedure for an ISDN telephone terminal device corresponding to the setting procedure shown in Figures 1a/1b.

10 The display screens 100-403 shown in Figure 2a correspond to the display screens 100-403 shown in Figure 1a, so that the above explanations are referenced here.

In contrast to analog telephone terminal devices, however, there is the possibility given ISDN telephone terminal devices of allocating a plurality of
15 telephone numbers to an ISDN terminal. After the display screens 401-403, a new selection mask 500 is therefore displayed, the user being asked via this whether the input of such multiple telephone numbers is desired. Upon actuation of the "YES" key, the user can subsequently input a total of three such multiple telephone numbers in corresponding input masks 501-503 with the number keys of the telephone terminal
20 device. After actuation of the "OK" key when the input mask 503 is displayed or, respectively, after selection of the "NO" option when the selection mask 500 is displayed, the setting procedure for the payment factor that was already described on the basis of Figure 1b follows, so that the above explanations about the display screens 500-503 of Figure 1b can be referenced.

25 When, upon presentation of the display screen 600, the user has selected the "NO" option or, respectively, input the desired payment factor into the input mask 603 and subsequently actuated the "OK" key, a further selection mask 700 (see Figure 2c) is displayed on the display of the telephone terminal device, with whose assistance the user can activate or deactivate what is referred to as the CLIR performance feature
30 (calling line identification restriction) of the ISDN telephone terminal device in order to thus suppress the transmission of the user's own telephone number to the other

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